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PATENT APPLICATION
Docket No.: 34648/00440USPX
P11547US

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09/531917
03/21/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of: Andrew SHARP et al.

For: METHOD AND LOGICAL UNITS FOR PROVIDING SERVICES

CERTIFICATE OF MAILING BY EXPRESS MAIL

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BOX PATENT APPLICATION
Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

PATENT APPLICATION TRANSMITTAL LETTER

Transmitted herewith for filing, please find the following:

1. (XX) The specification of the above-referenced patent application is enclosed herewith (26 page(s) including claim(s) and Abstract).

2. (XX) 8 sheet(s) of:
___ informal drawing(s) is (are) enclosed herewith.
X formal drawing(s) is (are) enclosed herewith.

3. ( ) This application is a:
___ Continuation
___ Divisional
___ Continuation-In-Part
of prior copending parent application
Serial No. _____ filed on _____, now pending.
Please amend the application to insert the following line in the beginning of the specification:
--This application is a Continuation of prior application Serial No. _____ filed on _____, now pending.--
In the event that a petition to extend time under 37 CFR 1.136 is necessary in the parent application to maintain copendency for this application, a petition for an extension of the necessary time to maintain copendency is hereby requested for the parent application and the Commissioner is hereby authorized to debt our Account Number 10-0447 for the necessary fees.

4. (X) The fees for this application have been calculated and included as shown below (Prior to calculating the fees, please enter any enclosed preliminary amendment.):

	NO. FILED	NO. EXTRA	RATE	FEE
BASIC FEE				$690
TOTAL CLAIMS	24-20	4	$18	72
INDEPENDENT CLAIMS	2- 3	0	$78	0
MULTIPLE DEPENDENT CLAIM(S) PRESENTED			$260	
TOTAL FEES:				$762.00
Deduct one-half of fee for Small Entity				
TOTAL AMOUNT DUE:				$762.00

X A check in the amount of $762.00 is enclosed herewith. Please charge any deficiency or credit any overpayment to Deposit Account No. 10-0447.

___ Please charge my Deposit Account No. _____ in the amount of $_____. Please charge any deficiency or credit any overpayment to Deposit Account No. _____.

5. (X) An oath or declaration is enclosed herewith that is:

X Unsigned

___ Newly executed per 37 CFR 1.63(a) and (b).

___ A copy of the executed declaration filed in the prior application upon which priority is based, showing the signature or an indication thereon that it was signed; and:

___ This application is being filed fewer than all of the inventors named in the prior application and it is requested that the following name or names be deleted from the list of inventors in the prior application for this continuation or divisional application:

_____

_____.

___ The prior application was accorded status under 37 CFR § 1.47 and is accompanied by:

___ A copy of the decision granting a petition to accord Sec. 1.47 status to the prior application (unless all of the inventors have or legal

representatives have filed an oath or declaration to join in the prior application).

___ A copy of the subsequently executed oath(s) or declaration(s) filed by the inventor(s) or legal representative(s) that have subsequently joined in the prior application.

6. (X) The power of attorney for this application:

___ is appointed in the newly executed Oath or Declaration submitted herewith.

_X_ is appointed by the power of attorney enclosed herewith.

___ remains the same as originally in the parent application.

___ was changed during the prosecution of the parent application and a copy of the change in the power of attorney is enclosed herewith.

7. (XX) The correspondence address for this application shall be:

Richard J. Moura, Esq.
Jenkens and Gilchrist, P.C.
3200 Fountain Place
1445 Ross Ave.
Dallas, Texas 75202

_X_ which is a new correspondence address or a change therein.

___ which is the same as originally in the parent application.

___ which is the change in the correspondence address that was filed during the prosecution of the parent application.

8. (X) Priority is hereby claimed under 35 USC 119 and 172 to the following foreign applications:

Country	Serial No.	Date
European Patent Office	99105742.3	March 22, 1999
_____	_____	_____

and:

_X_ A certified copy of each application is enclosed herewith.

___ A certified copy of each application was filed in prior application Serial No. _____.

9. ( ) A verified statement claiming small entity status under 37 CFR 1.9 and 1.27:

___ is enclosed herewith.

___ was filed in parent application Serial No. _____, and such status remains unchanged and is requested for this application.

10. (XX) A preliminary amendment is enclosed herewith.

11. ( ) An Information Disclosure Statement with Modified PTO Form 1449 and a copy of the cited references are enclosed herewith.

12. ( ) An Assignment of the invention to _____ with cover sheet and recordation fee is enclosed herewith for recordation by the Assignment Branch.

13. (XX) The Commissioner is hereby authorized to charge payment, or to credit any overpayment, of the following fees associated with this filing or during the pendency of this application to Deposit Account No. 10-0447.

_X_ Any patent application filing fees under 37 CFR 1.16.
_X_ Any patent application processing fees under 37 CFR 1.17.
___ The issue fee under 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).

14. ( ) Other (specify):_____

_____

_____.

15. (XX) Confirmation Postcard.

Respectfully submitted,

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Patent Application
Docket No.: 34648-00440USPX

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	§	
	§	
Andrew SHARP	§	
Martin STÜMPERT	§	Art Unit: Not Assigned
	§	
Serial No.: Not Assigned	§	
	§	
Filed: Herewith	§	Examiner: Not Assigned

For: METHOD AND LOGICAL UNITS FOR PROVIDING SERVICES

Assistant Commissioner for Patents
Box Patent Application
Washington, D.C. 20231

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Type or Print Name CARL W. WILLER
Signature

Dear Sir:

PRELIMINARY AMENDMENT

Prior to commencing the examination of the above-identified application, please amend the above-identified application as set forth below to place the application in condition for allowance.

In the Specification:

On page 1, line 2, please insert the heading **--BACKGROUND OF THE INVENTION--.**

On page 1, between lines 2 and 3, please insert the heading --Technical Field of the Invention--.

On page 1, line 6, please insert the heading --Description of Related Art--.

On page 5, line 7, please insert the heading --**BRIEF DESCRIPTION OF THE DRAWINGS**--.

On page 6, line 2, please insert the heading --**DETAILED DESCRIPTION OF THE DRAWINGS**--.

In the Abstract:

On page 26, line 12, please delete the line in its entirety.

On page 26, line 15, please delete "Fig. 7"

In the Claims:

Please delete Claim 16 from the application.

Please amend Claims 1-15 and 17-22 as follows:

1. (Amended) A method [Method] for providing services in a mobile communication system having a number n active calls, n being an integer, [, wherein a number of n calls, with n = 1,2,3,... of m] with m different bearer capabilities associated therewith, m being an integer, [with m = 1,2,3,..., are handled, with] comprising the following steps:

[-] requesting a set-up of an additional [a further] call [n+1] while the number n active [of] calls with m different bearer capabilities associated thereto is [already] set up,

[-] deciding [either] whether to set up [a] the additional call in parallel [call or], to set up [a further] the additional call [n+1] by choosing one call to be put on hold and by using a bearer associated with the one call put on hold to service the additional call [with bearer capabilities], or to reject a set up of the additional call.

2. (Amended) The method [Method] for providing services according to claim 1,[with the] further comprising the steps of:

[-] comparing the bearer capabilities of the n[+ 1] active calls[,];

[-] determining whether any of the [number of] n active calls has [the same] a compatible bearer capability [m as] required to service the [further] additional call [n+1, and];

[-] in the event that at least one of the n calls has a compatible bearer capability as that required to service the additional call, choosing one of the n calls with the [same bearer] compatible bearer capability [as] with the [further] additional call[,] to be put on hold;[,]

placing a [put the] chosen call on hold; [and]

sending [of] an acknowledgment; and

setting up the [further] additional call.

3. (Amended) The method [Method] for providing services according to claim 2, wherein the compatible [with the further steps

- determining whether any of the number n of calls has a] bearer capability is sufficient to be used for the [further] additional call [and choosing one of the calls to be put on hold].

4. (Amended) The method [Method] for providing services according to claim 1,[2 or 3, with the] further comprising the step of [steps

- deciding that] rejecting the additional [further] call [n+1 is rejected] for a set up.

5. (Amended) The method [Method] for providing services according to claim 1[,2, 3 or 4], wherein

[-] the deciding step [decision either to set up a parallel call or to choose a call to be put on hold or to reject a call,] is influenced by user settings [of a user].

6. (Amended) The method [Method] for providing services according to claim 1[,2, 3 or 4], wherein

[-] the deciding step [decision either to set up a parallel call or to choose a call to be put on hold or to reject a call,] is dependent [depending] on settings of parameters.

7. (Amended) The method [Method] for providing services according to claim 1[,2,3 or 4], wherein

[-] the [choosing] choice of a call to be put on hold is influenced by user settings[of a user].

8. (Amended) The method [Method] for providing services according to claim 1, [2 or 3, with the further steps] further comprising the step of

[-] deciding that the [further] additional call is put [on] in a call waiting stage.

9. (Amended) The method [Method] for providing services according to claim 5 [or 7], wherein

[-] the user settings are set once.

10. (Amended) The method [Method] for providing services according to claim 5[or 7], wherein

[-] the user settings are set before a first attachment to the communication system.

11. (Amended) The method [Method] for providing services according to claim 5[or 7], wherein

[-] the user settings are set before a call set up.

12. (Amended) The method [Method] for providing services according to [any of the claims] claim 1 [to 11], further comprising the step of setting up

[-] [wherein] a conference call with a [number] plurality of users [is set up].

13. (Amended) The method [Method] for providing services according to [any of the claims] claim 1 [to 12],

[-] wherein a call is forwarded to another user.

14. (Amended) The method [Method] for providing services according to claim 1[to 13],

[-] wherein the services are supplementary services inherited from a GSM system by a user in an UMTS system.

15. (Amended) A logical [Logical] unit [in a core network] of a mobile communication system [wherein] having a number [of] n active calls, n being an integer, [, with n = 1,2,3... of m different] and a number m bearer capabilities associated therewith, m being an integer, [with m= 1,2,3... are handled characterized, by] comprising:

a comparator operable to compare [means for comparing] a bearer capability associated with a requested [for a] call set up [of a further call n+1] with the m bearer capabilities [m] of the n active calls [already set up,];

a first unit operable to decide [means for deciding] whether [a] the requested call set up should be offered as a new parallel call, [or] as a waiting call [and for performing the decision,], or a rejected call; and

a storage unit operable to store [storage means for storing] information about the active calls.

17. (Amended) The logical [Logical] unit according to claim 15[or 16], wherein the information stored within the storage unit indicates [about an active call are] call identification, bearer identification and bearer capability.

18. (Amended) The logical [Logical] unit according to [any of the claims] claim 15[to 17], wherein the first unit is [means for deciding are] influenced by user settings [of a user] defining the decision outcome.

19. (Amended) The logical [Logical] unit according to claim [any of the claims] 15[to 17], further comprising an indicator operable to indicate to [with means for indicating] a mobile user that a decision has to be taken.

20. (Amended) The logical [Logical] unit according to claim 18, wherein the user settings are set once.

21. (Amended) The logical [Logical] unit according to claim 18, wherein the user settings are set before a first attachment to the communication system.

22. (Amended) The logical [Logical] unit according to claim 18, wherein the user settings are set before a call set up.

Please add new claims 23 - 25 as follows:

23. (New) The method for providing services according to claim 2, wherein the compatible bearer capability is identical to a bearer capability of one of the n active calls.

24. (New) The logical unit according to claim 15, wherein said logical unit is located within a core network of said mobile communication system.

25. (New) The logical unit according to claim 15, wherein said logical unit is located in a mobile user equipment of said mobile communication system.

REMARKS

In view of the foregoing amendment, the claims now pending in the application are respectfully submitted to be in condition for allowance, and action to that end is respectfully requested.

It is believed that no fee is due for the filing of this Preliminary Amendment; however, should a fee be due, the Commissioner is authorized to charge the appropriate fee to our Deposit Account No. 10-0447.

Respectfully submitted,

By: _____
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Method and Logical Units for providing services

The invention relates to a method and logical units for providing services in a mobile communication system wherein a number of calls with different bearer capabilities are handled.

When communicating via a mobile communication system, in some cases a subscriber is called by a third party or wants to communicate with a plurality of parties. The GSM (Global System for Mobile communication) communication system supports this by offering so called supplementary services, e.g. call waiting, call hold, call forwarding on busy subscriber and multi party call. All these services are provided by the network and are activated by the mobile user.

A core network consists at least of entities that provide support for the network features and telecommunication services. The support provided may include for example a functionality of the management of user location information, the control of network features and services, the transfer mechanisms for signalling and for user generated information.

In the following these definitions are used, user B is a user who is engaged in a call with a user A. User A is the mobile user who is provided by the network with the respective supplementary service or supplementary services. User C is a user, who originates a call to user A, or is called by user A.

Call waiting enables user A to receive a call from user C. The call from user C is put on call waiting and an indication is sent to user B. User B can put the call with user A on hold and accept the call from user C. He can also reject the call from user C so that this call can be forwarded by the call forwarding on busy subscriber service. If user B accepts the call from C, he can set up a multi party call including user A in the active call with user C (ETSI Standards GSM02.83 and GSM02.84, version 5.0.0, November 1996).

Fig.11b shows an example of a multi party call between three users A, B, C. In this example the multi party call is active and handled by an conference call device CCD in a mobile services switching center MSC. A conference call device is a device that can connect more than two parties with each other at the same time.

The GSM communication system also offers packet switched data services as the GPRS (General Packet Radio Service). However there are still shortcomings in the setup of several calls in parallel, as it is still not possible for example to do an active speech call, Internet browsing and the reception of a fax at the same time.

To overcome these shortcomings, a so-called UMTS (Universal Mobile Telecommunication Service) is under development. One of the principles of this communication system is the provision of multiple calls, which means that one user is able to handle multiple calls at the same time (ETSI Standard UMTS 22.00 version 2.0.0, January 1999).

The UMTS (Universal Mobile Telecommunication System) communication system is capable of handling several calls to one mobile user equipment, the so-called multiple call capability. Opposite to a GSM (Global System for Mobile communication), the UMTS communication system neither releases a first call nor puts a first call on hold. The UMTS communication system sets up several calls in parallel to one mobile user equipment. This enables a mobile user to use several applications at the same time. For example a mobile user can have a speech call while receiving a fax and doing a data call. Even several calls of the same kind, as for example multiple data calls are possible. Fig. 11a shows an example of a possible implementation of a multiple call from a device B and a device C to a mobile user equipment A. In this example the multiple calls are handled in parallel by a mobile services switching center MSC.

It is a shortcoming of the known UMTS that there is no description how a mobile user can for example set up a speech call to two subscribers at the same time providing also a connection between these two subscribers.

It is a further shortcoming of the known prior art that there is no handling for the case that network resources for setting up multiple calls are exhausted.

Therefore it is an object of the present invention to provide a mobile user in a mobile communication system that supports a number of calls with the same or different bearer capabilities for one mobile user with additional services.

This problem is solved advantageously by the method of claim 1 and the logical units of claim 16 and 17.

It is advantageous that the air interface between a mobile user equipment and the core network is used for only one call and by that uses the radio resources more efficiently, this enables an operator to offer more calls at the same time.

Further advantageous is that the communication system and the mobile user equipment provide more flexibility of call handling to the mobile user, in that the mobile user can decide on a per call basis how the user wishes to accept a new call.

It is further advantageous, that the mobile user equipment has to use fewer calls, this saves battery power and increases the stand-by time and active call time of a mobile user equipment.

Another advantage is that the system uses services known to a mobile user familiar with GSM, this reduces the time a user needs to accept and get used to the new system.

It is further advantageous that the system uses services known to a mobile user familiar with GSM. This reduces the time a user needs to get used to the new services and it reduces the time until a new user makes use of the new services.

It is advantageous that the connection hardware is placed in the core network instead of having it into the mobile user equipment, this reduces the costs and the size of the mobile user equipment.

Further advantageous embodiments of the invention are found in the claims 2 to 15 and claims 18 to 23.

It is advantageous according to the depending claims that the user defined settings for taking a decision, whether a call should be set up as a new parallel call, a call should be put on hold or a call should be rejected can be defined once for all further calls, this makes the use of the service more comfortable for a mobile user.

Another advantage according to the depending claims is that the user defined settings for taking a decision, whether a call should be set up as a new parallel call, a call should be put on hold or a call should be rejected can be defined before each originating call, this makes the use of the service more flexible for a mobile user.

Further advantageous is according to the depending claim that the user defined settings for making a decision, whether a call should be set up as a new parallel call, a call should be put on hold or a call should be rejected can be defined before each first attachment to a mobile communication system that supports multiple calls, this offers a good compromise between the flexibility and convenience of the service.

Further advantageous is according to the depending claim that the decision logic is fully implemented in the mobile user equipment, this reduces the necessary processing in the core network and improves the performance of the core network so that the core network can handle more call attempts in the same time.

Another advantageous according to the depending claims is that the decision logic is fully implemented in the mobile user equipment, this reduces the necessary transfer of

information between the mobile user equipment and the core network and allows more chargeable traffic on the air interface.

Further advantageous is according to the depending claims that the decision logic is partly implemented in the core network, this reduces the necessary signalling in the case that a terminating call is attempted to the mobile user equipment.

In the following the invention will be further described by means of examples and by means of the figures. The following figures show:

Fig. 1: a signal sequence for the setup of three parallel calls in a communication system for a mobile terminating call,

Fig. 2: a signal sequence for the setup of two parallel calls and a hold procedure for a mobile originating call,

Fig. 3: a signal sequence for the setup of three parallel calls in a communication system for a mobile terminating call,

Fig. 4: a signal sequence for the setup of two parallel calls and the hold procedure for a mobile terminating call,

Fig. 5: a signal sequence for the setup of two parallel calls and the rejection of a third call,

Fig. 6: a signal sequence for the setup of three parallel calls in a communication system for a mobile originating call,

Fig. 7: a signal sequence for the setup of two parallel calls and the hold procedure for a mobile originating call,

Fig. 8: a signal sequence for the setup of three parallel calls in a communication system for a mobile terminating call,

Fig. 9: a signal sequence for the setup of two parallel calls and the hold procedure for a mobile terminating call,

Fig.10: a signal sequence for the set-up of two parallel calls and the rejection of a third call,

Fig.11a: a multiple call and

Fig.11b: a multi party call.

The sequences according to the figures 1to 10 are only a part of a whole signal transfer process necessary. However, due to clarity only necessary parts are shown.

In the following the word call is used as an equivalent to the word connection and is explicitly not restricted to the meaning of speech call but as every kind of connection that could be set up with a mobile user equipment.

A mobile user equipment as it should be understood is an equipment that is capable of communicating wirelessly via a communication system. It is for example, a mobile computer capable of communicating, a mobile phone or a mobile multimedia system.

In the following the method according to the invention will be further described. The following part of the description describes the invention in general and following this the invention will be further described by means of the figures 1- 10.

A method for providing services in a mobile communication system, wherein a number of n calls, with n = 1,2,3,... of m different bearer capabilities, with m = 1,2,3,..., are handled includes the following steps. A request for a set-up of a further call is n+1 is either received or sent while the number n of calls with m different bearer capabilities are already set up. Further a decision is taken whether to set up a parallel call or to set up a further call n+1 by choosing one call to be put on hold and by using a bearer with bearer capabilities for the new call.

As it may be useful to assign a bearer capability of another call that is already set up, the following further steps are performed. The bearer capabilities of the n + 1 calls are compared. It is determined whether any of the number of n calls have the same bearer capability m as the further call n+1, and one of the n calls with the same bearer capability as the further call are chosen to be put on hold. Then the chosen call is put on hold and sending of an acknowledgement and setting up the further call is performed.

In case there is not any same bearer capability existing, the method for providing services provides the further steps of determining whether any of the number n of calls have a bearer capability sufficient to be used for the further call. Sufficient means that the bearer requirement of a new call attempt are fulfilled and the call could be set up. according to this one of the possible calls can be put on hold. However, as there may be a variety the user either has to choose or the choice is done automatically.

In a first example of the invention, a core network UMTS CN, e.g. a mobile communication system, contains a logical unit LU with means for comparing bearer requirements on bearer capabilities of an incoming call attempt with bearer capabilities of an active call.

Bearer requirements should be understood as bearer capabilities that have to be fulfilled by a bearer that is used by a call. These requirements could be but are not limited to delay, delay jitter, data rates, bit error rates, error detection, error correction and further requirements.

An incoming call attempt is an attempt to terminate a call on a mobile user equipment UE.

The logical unit LU in the core network UMTS CN further contains a means for deciding whether an incoming call attempt should be put on call waiting or not and a storage means to store information about active calls, at least bearer capabilities, bearer identification and call identification.

This decision can be based on user settings, information about current states of the communication network as for example traffic load, on information about the incoming call attempt and on information about the mobile user equipment and its capabilities.

The mobile user equipment contains a first logical unit LU1 with means for deciding whether a call should be put on hold and which call should be put on hold. The first logical unit LU1 also contains a means for detecting whether the bearer requirements of an incoming call request are fulfilled by a bearer already used by an active call of the mobile user equipment UE. As an example the bearer requirements of an incoming call request that is a data call are fulfilled by an speech call, but not the other way around. The first logical unit LU1 also contains storage means to store information about the active calls, at least bearer capabilities and call identification.

In the following, an example is described by means of figure 1.
The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN, e.g. a mobile communication system. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. A call type is an information identifying the type of call, e.g. a full rate speech call or a 64 kbit/s data call. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

It has to be mentioned here, that the set up of the first and the second call as mobile originated calls is only chosen by example and should not be seen as a limit of the invention.

The user equipment UE sets up a third call in a fifth step by sending a setup message SETUP3(A-D) to the core network UMTS CN. This message contains again at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a sixth step by sending an assign message ASSIGN3, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

As described before a number n of calls is set up in parallel. In the example the number of calls that are set up in parallel is three. However, as already mentioned the bearer requirements of every call could be different. The n calls can have a number of m different bearer capabilities or can have only one different bearer capabilities. Then for n=3 calls, m=1,2 or 3 bearer capabilities are possible, which means for m=1 that all calls are of the same type and for m=3 that all calls are of different type.

In the following the example is described by means of figure 2.
The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message again contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

Before setting up a third call, the first logical unit LU1 in the mobile user equipment UE decides that one call should be set on hold. The first logical unit LU1 decides that the first call is put on hold. The mobile user equipment informs the core network UMTS CN about this decision by sending a hold message HOLD(A-B). This message includes an information that a call should be put on hold and a call identification of the call. The core network UMTS CN puts the call on hold and acknowledges by sending a message HOLD ACK(A-B) which includes a call identification of the call that has been put on hold.

Afterwards the mobile user equipment starts to set up a third call reusing the bearer of the first call by sending a set up message SETUP3(A-D) to the core network. The information which bearer has been used by the first call can either be stored in the storage means to store of the first logical unit LU1 or can be included in the acknowledgement message HOLD ACK(A-B).

As mentioned before the first logical unit LU1 decides that a call should be put on hold instead of allowing a further parallel call. As will be subject to a further part of the description, the logical units can be either programmed in that way that for every call a decision has to be taken if the call should be put on hold or if a parallel call is allowed, or that this is defined only once or that this has to be defined before every call.

In case that the bearer capability of the call put on hold is the same as the bearer capability of the new call that is set up, a service Multiparty Call can be invoked. In case that two bearer capabilities of the call differ, an overwriting assignment is performed. The overwriting assignment will be further described according to figure 7.

In the following the example is described by means of figure 3. The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the callt should be connected to, and a call identification. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, e.g. a data call, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The core network
CN receives a message SETUP3(D-A) indicating an incoming call attempt from a user D to A. The logical unit LU in the core network UMTS CN decides that the incoming call will be set up as a new parallel call and sends a set up message SETUP3(D-A) and an assign message ASSIGN3 to the mobile user equipment UE. These messages contain at

least information about the requested call type, the subscriber the call should be connected to, a call identification, and a bearer identification.

In the following the example is described by means of figure 4. The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN, requesting the set-up of a call from a user A to a user C. This message contains at least information about the requested call type, e.g. a speech call, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The core network UMTS CN receives a message SETUP3(D-A) indicating an incoming call attempt from user D to user A. The logical unit LU in the core network UMTS CN decides that the incoming call will be offered as a waiting call and sends a call waiting indication message SETUPW to the mobile user equipment UE. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The first logical unit LU1 decides to accept this

waiting call and the mobile user equipment UE informs the core network UMTS CN with CALL CONFIRMED. The mobile user equipment UE initiates the signaling towards the calling party by sending an alerting message ALERTING to the core network UMTS CN. The first logical unit LU1 in the mobile user equipment UE decides to put the first call on hold. The mobile user Equipment UE informs the core network UMTS CN by sending a hold message HOLD(A-B). This message includes an information that a call should be put on hold and a call identification of the call. The core network UMTS CN puts the call on hold and acknowledges by sending a message HOLD ACK(A-B) which includes a call identification of the call that has been put on hold.

Afterwards the mobile user equipment accepts the waiting call e.g. by reusing the bearer of the first call by sending a set up message CONNECT(D-A) to the core network. The information which bearer has been used by the first call can either be stored in the storage means of the first logical unit LU1 or can be included in the acknowledgement message HOLD ACK(A-B).

In the following the example is described by means of figure 5. The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending

an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The first logical unit LU1 and the logical unit LU store the relevant information about the call.

The core network UMTS CN receives a message SETUP3(D-A) indicating an incoming call attempt. The core network UMTS CN offers this call either as a waiting call by sending a call waiting indication message SETUPW or offers it as a new parallel call by sending a setup message SETUP3(D-A). The first logical unit LU1 in the mobile user equipment UE decides to reject this call attempt. The mobile user equipment informs the core network UMTS CN by sending a message DISCONNECT(D-A) that carries at least information that a call is rejected and a call identification of the rejected call.

In a second example of the invention, the mobile user equipment contains a second logical unit LU2 with means for deciding whether a call should be handled as a new parallel call or as a waiting call. The second logical unit LU2 also contains a means for deciding whether a call should be put on hold and which call should be put on hold. The second logical unit LU2 also contains a means for detecting whether the bearer requirements of an incoming call request are fulfilled by a bearer already used by an active call of the mobile user equipment UE. The second logical unit LU2 also contains storage means to store information about the active calls, at least bearer capabilities, bearer identification and call identification.

In the following the example is described by means of figure 6.The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. A call type is an information identifying the type of call, e.g. a full rate speech call or a 64 kbit/s data call or any other type of call.

The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The user equipment UE sets up a third call in a fifth step by sending a setup message SETUP3(A-D) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a sixth step by sending an assign message ASSIGN3, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

In the following the example is described by means of figure 7.The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call

identification. A call type is an information identifying the type of call, e.g. a full rate speech call or a 64 kbit/s data call.

The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

Before setting up a third call, the second logical unit LU2 in the mobile user equipment UE decides that one call should be put on hold. The second logical unit LU2 decides that the first call will be put on hold. As already mentioned before, different ways of determining if a call should be put on hold or if a parallel call is allowed, are possible. The mobile user equipment informs the core network UMTS CN about this decision by sending a hold message HOLD(A-B). This message includes an information that a call should be put on hold and a call identification of the call. The core network UMTS CN puts the call on hold and acknowledges by sending a message HOLD ACK(A-B) which includes a call identification of the call that has been put on hold.

Afterwards the mobile user equipment starts to set up a third call by using a new bearer by sending a set up message SETUP3(A-D) to the core network. The new bearer is necessary because an overwriting assingment is performed. An overwriting assignment

will remove the user plane of the call that is put on hold and sets up a new user plane according to the bearer of the waitng call. The core network UMTS CN informs the mobile user equipment UE about the new bearer identity by sending an assignment message ASSIGN3.

In the following the example is described by means of figure 8. The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The core network UMTS CN receives a message SETUP3(D-A) indicating an incoming call attempt. The core network UMTS CN informs the mobile user equipment about the incoming call attempt by sending a set up message SETUP3(D-A). The second logical unit LU2 decides to accept this call as a new parallel call and informs the core network by sending an accept message CALL CONFIRMED containing an indication that the call

should be set up as a parallel call. The core network UMTS CN answers by sending an assign message ASSIGN3, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The mobile user equipment UE initiates the signalling towards the calling party by sending an alerting message ALERTING to the core network UMTS CN.

In the following the example is described by means of figure 9. The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber whome should be connected to, and a call identification. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The core network UMTS CN receives a message SETUP3(D-A) indicating an incoming call attempt. The core network UMTS CN informs the mobile user equipment about the incoming call attempt by sending a set up message SETUP3(D-A). The second logical

unit LU2 decides to accept this call as a waiting call and the mobile user equipment UE informs the core network UMTS CN by sending an accept message CALL CONFIRMED which contains information that the call shall be set up as a waiting call and a call identification. The mobile user equipment UE initiates the signalling towards the calling party by sending an alerting message ALERTING to the core network UMTS CN. The second logical unit LU2 decides to put the first call on hold and informs the core network UMTS CN by sending a hold message HOLD(A-B) which includes information that a call shall be put on hold and a call identification of this call. The core network UMTS CN puts the call on hold and acknowledges this by sending an acknowledgement message HOLD ACK(A-B). The mobile user equipment activates the waiting call reusing the bearer of the first call by sending a connect message CONNECT.

In the following the example is described by means of figure 10. The mobile user equipment UE sets up a first call in a first step by sending a setup message SETUP1(A-B) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a second step by sending an assign message ASSIGN1, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the requested bearer. The second logical unit LU2 stores the relevant information about the call.

The mobile user equipment UE sets up a second call in a third step by sending a setup message SETUP2(A-C) to the core network UMTS CN. This message contains at least information about the requested call type, the subscriber the call should be connected to, and a call identification. The core network UMTS CN answers in a fourth step by sending an assign message ASSIGN2, which confirms the requested call and contains at least a bearer identification for the call that has been successfully set up. This orders the core network UMTS CN and the mobile user equipment UE to set up a user plane for the

requested bearer. The second logical unit LU2 stores the relevant information about the call.

The core network UMTS CN receives a message SETUP3(D-A) indicating an incoming call attempt. The core network UMTS CN informs the mobile user equipment about the incoming call attempt by sending a set up message SETUP3(D-A). The second logical unit LU2 decides to reject this call and the mobile user equipment UE informs the core network UMTS CN by sending a rejection message DISCONNECT. This message DISCONNECT includes information that the call shall be rejected and a call identification of this call. Call forwarding on busy subscriber service may be invoked if the service is active operative for the subscriber.

According to the invention services are provided in a mobile communication system. As the system allows parallel calls, e.g. a UMTS system or any other system allowing multiple calls can be understood. The services provided to a user can be services like call waiting call on Hold etc. known in the area of GSM.

In the following the logical unit according to the invention will be further described (without figure). References known from the figures described before are maintained.

A logical unit in a core network UMTS CN of a mobile communication system handles a number of n calls, with n = 1,2,3,... of m different bearer capabilities, with m = 1,2,3...,.

Further means for comparing a bearer capability requested for a set up of a further call n+1 with the bearer capabilities m of the n calls already set up are provided. Therefore the means compares every bearer capability of every call. In addition means for deciding whether a call should be offered as a new parallel call or as a waiting call and for performing the decision are provided. The decision is either based on user setting, e.g. depending on the connected subscriber, the application or capabilities of the mobile user equipment, e.g. number of parallel calls that can be handled, of transmission or network capabilities, e.g. possible number of parallel calls or connections. Storage means for

storing information about the active calls, e.g. about call identification, bearer identification and bearer capability are provided, too.

Another logical unit provided in a mobile user equipment of a mobile communication system wherein a number of n calls, with n = 1,2,3,... of m different bearer capabilities, with m = 1,2,3..., are handled is described in the following (without figure).

The logical unit comprises means for comparing a bearer capability requested for a set up of a further call n+1 with the bearer capabilities m of the n calls already set up and means for deciding whether a call should be set up as a new parallel call or which of the n calls should be put on hold before setting up or accepting the further call n+1. The means for deciding are the same as described before. Further the logical unit comprises means for performing the decision, and storage means storing information about the active calls.

In both logical units mentioned before, means for deciding are influenced by settings of a user. E.g. a user can choose a setting which gives a calling party priority classes. This means a specific caller is always allowed by the user and connected. Another one, e.g. with a lower priority will not be connected.

The user settings mentioned before can either be set once and stay valid until a further setting or they are set before every first attachment to a communication system or can be set before every call set up. These user settings are brought into the logical unit according to the method mentioned before and being part of the invention.

Further means for indicating a mobile user that a decision has to be taken are provided. The indication can be either visible, audible or tactile on the mobile user equipment.

The method and logical units described before provide services that are for example supplementary services inherited from a GSM system by a user in an UMTS system

Claims

1. Method for providing services in a mobile communication system, wherein a number of n calls, with n = 1,2,3,... of m different bearer capabilities, with m = 1,2,3,..., are handled, with the following steps:
   - requesting a set-up of a further call n+1 while the number n of calls with m different bearer capabilities is already set up,
   - deciding either to set up a parallel call or to set up a further call n+1 by choosing one call to be put on hold and by using a bearer with bearer capabilities.

2. Method for providing services according to claim 1, with the further steps of
   - comparing the bearer capabilities of the n + 1 calls,
   - determining whether any of the number of n calls has the same bearer capability m as the further call n+1, and
   - choosing one of the n calls with the same bearer capability as the further call, to be put on hold, put the chosen call on hold and sending of an acknowledgement and setting up the further call.

3. Method for providing services according to claim 2, with the further steps
   - determining whether any of the number n of calls has a bearer capability sufficient to be used for the further call and choosing one of the calls to be put on hold.

4. Method for providing services according to claim 1,2 or 3, with the further steps
   - deciding that the further call n+1 is rejected.

5. Method for providing services according to claim 1,2, 3 or 4, wherein
   - the decision either to set up a parallel call or to choose a call to be put on hold or to reject a call, is influenced by settings of a user.

6. Method for providing services according to claim 1,2, 3 or 4, wherein
   - the decision either to set up a parallel call or to choose a call to be put on hold or to reject a call, is depending on settings of parameters.

7. Method for providing services according to claim 1,2,3 or 4, wherein
   - the choosing of a call to be put on hold is influenced by settings of a user.

8. Method for providing services according to claim 1, 2 or 3, with the further steps
   - deciding that the further call is put on a call waiting stage.

9. Method for providing services according to claim 5 or 7, wherein
   - the user settings are set once.

10. Method for providing services according to claim 5 or 7, wherein
    - the user settings are set before a first attachment to the communication system.

11. Method for providing services according to claim 5 or 7, wherein
    - the user settings are set before a call set up.

12. Method for providing services according to any of the claims 1 to 11,
    - wherein a conference call with a number of users is set up.

13. Method for providing services according to any of the claims 1 to 12,
    - wherein a call is forwarded to another user.

14. Method for providing services according to claim 1 to 13,
    - wherein the services are supplementary services inherited from a GSM system by a user in an UMTS system.

15. Logical unit in a core network of a mobile communication system wherein a number of n calls, with n = 1,2,3,... of m different bearer capabilities, with m = 1,2,3..., are handled
characterised, by
means for comparing a bearer capability requested for a set up of a further call n+1 with the bearer capabilities m of the n calls already set up,
means for deciding whether a call should be offered as a new parallel call or as a waiting call and for performing the decision, and
storage means for storing information about the active calls.

16. Logical unit in a mobile user equipment of a mobile communication system wherein a number of n calls, with n = 1,2,3,... of m different bearer capabilities, with m = 1,2,3..., are handled
characterised, by
means for comparing a bearer capability requested for a set up of a further call n+1 with the bearer capabilities m of the n calls already set up,
means for deciding whether a call should be set up as a new parallel call or which of the n calls should be put on hold before setting up or accepting the further call n+1,
means for performing the decision, and
storage means storing information about the active calls.

17. Logical unit according to claim15 or 16, wherein information about an active call are call identification, bearer identification and bearer capability.

18. Logical unit according to any of the claims 15 to 17, wherein the means for deciding are influenced by settings of a user.

19. Logical unit according to any of the claims 15 to 17, with means for indicating a mobile user that a decision has to be taken.

20. Logical unit according to claim 18, wherein
the user settings are set once.

21. Logical unit according to claim 18, wherein
the user settings are set before a first attachment to the communication system.

22. Logical unit according to claim 18, wherein
the user settings are set before a call set up.

Abstract

The invention relates to a method and logical units for providing services in a mobile communication system. In the mobile communication system a number of calls are handled for one user. The calls may have different bearer capabilities. In case a further call with its bearer capability requests a set-up, either another parallel call can be set-up or a call can be put on hold or can be disconnected or can be put in a waiting stage. Further to this the bearer capabilities of the number n+1 of calls are checked in order to determine whether any of the n calls have the same bearer capabilities. Further to this it is checked whether any of the calls fulfills bearer requirements and can be taken on hold. If any of the calls meets the requirement, the call is put on hold and the further call is set up.

In addition to this services like a conference call and call forwarding are provided.

Fig. 7

FIG. 1

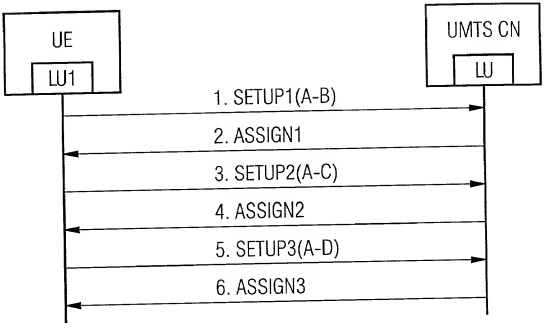

UE
LU1
UMTS CN
LU
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(A-D)
6. ASSIGN3

FIG. 2

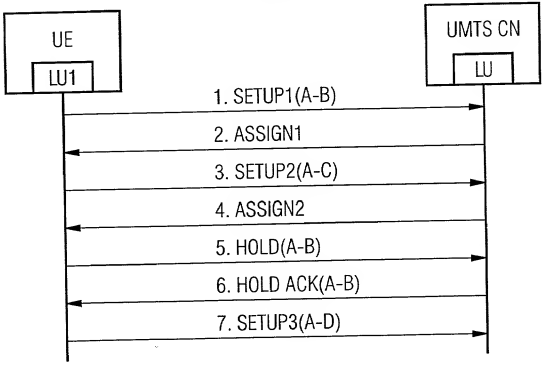

UE
LU1
UMTS CN
LU
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. HOLD(A-B)
6. HOLD ACK(A-B)
7. SETUP3(A-D)

FIG. 3

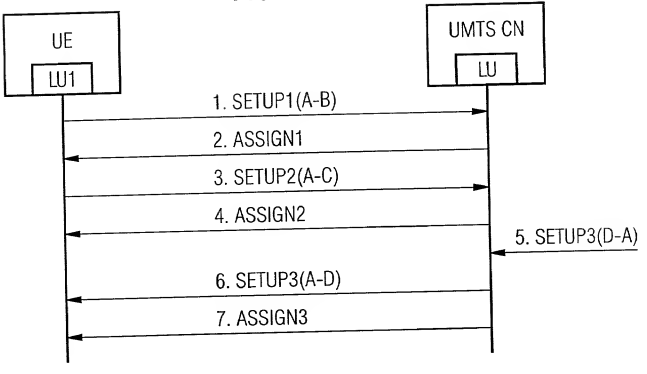

UE
LU1
UMTS CN
LU
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(D-A)
6. SETUP3(A-D)
7. ASSIGN3

FIG. 4

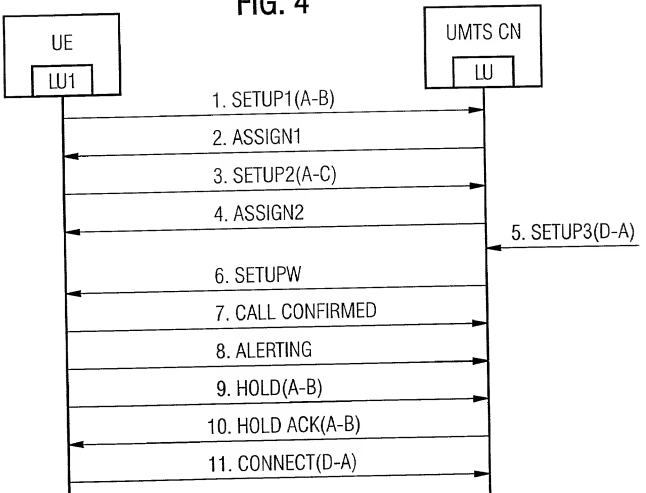

UE
LU1
UMTS CN
LU
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(D-A)
6. SETUPW
7. CALL CONFIRMED
8. ALERTING
9. HOLD(A-B)
10. HOLD ACK(A-B)
11. CONNECT(D-A)

FIG. 5

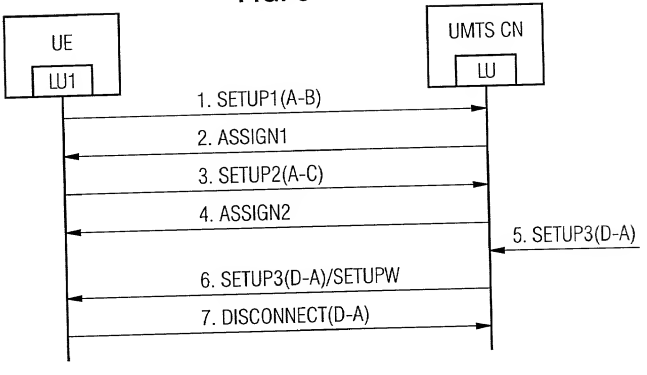

UE
LU1
UMTS CN
LU
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(D-A)
6. SETUP3(D-A)/SETUPW
7. DISCONNECT(D-A)

FIG. 6

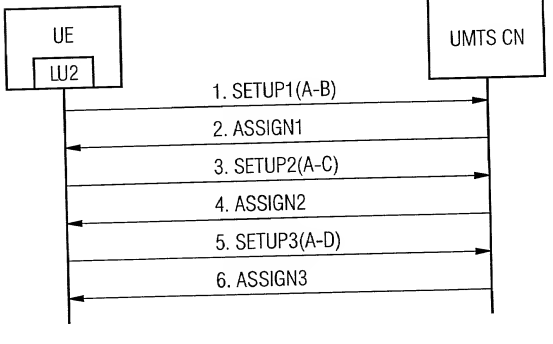

UE
LU2
UMTS CN
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(A-D)
6. ASSIGN3

FIG. 7

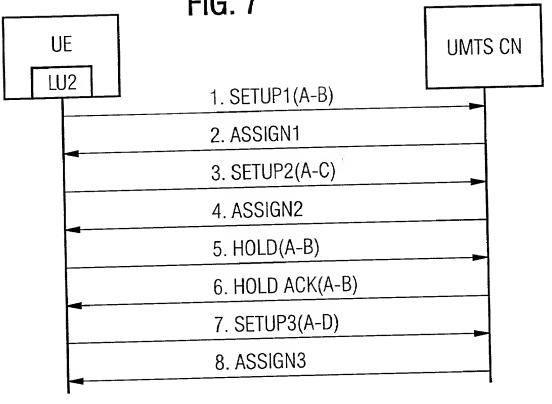

UE
LU2
UMTS CN
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. HOLD(A-B)
6. HOLD ACK(A-B)
7. SETUP3(A-D)
8. ASSIGN3

FIG. 8

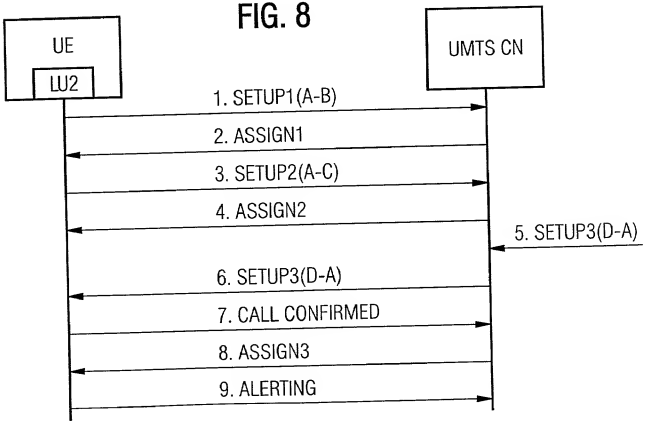

UE
LU2
UMTS CN
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(D-A)
6. SETUP3(D-A)
7. CALL CONFIRMED
8. ASSIGN3
9. ALERTING

FIG. 9

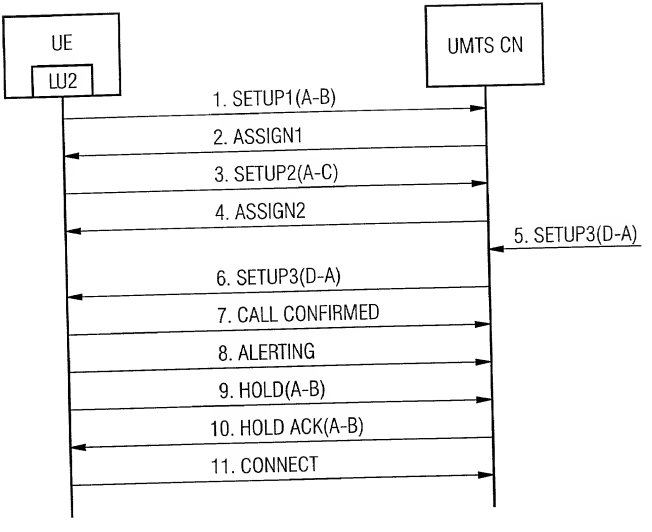

UE
LU2
UMTS CN
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(D-A)
6. SETUP3(D-A)
7. CALL CONFIRMED
8. ALERTING
9. HOLD(A-B)
10. HOLD ACK(A-B)
11. CONNECT

FIG. 10

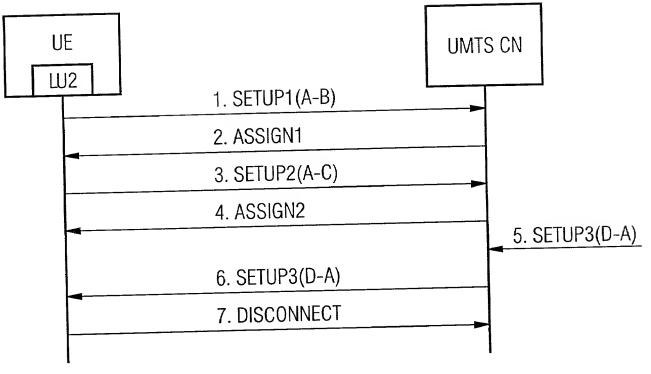

UE
LU2
UMTS CN
1. SETUP1(A-B)
2. ASSIGN1
3. SETUP2(A-C)
4. ASSIGN2
5. SETUP3(D-A)
6. SETUP3(D-A)
7. DISCONNECT

FIG. 11a

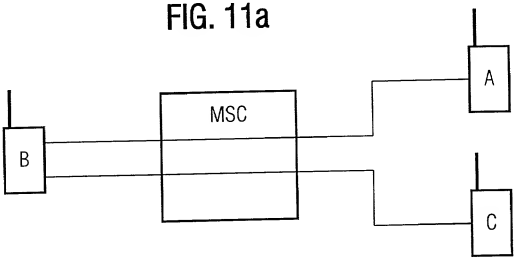
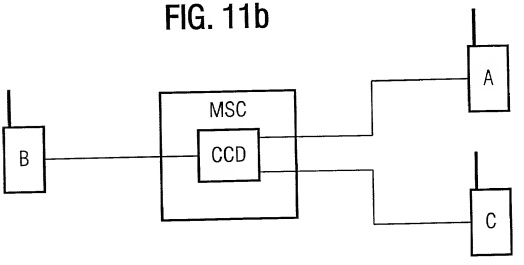


FIG. 11b



PATENT APPLICATION
DOCKET NO.: 34648/00440USPX
P11547US

RULES 63 AND 67 (37 C.F.R. 1.63 and 1.67)
DECLARATION AND POWER OF ATTORNEY

FOR UTILITY/DESIGN/CIP/PCT NATIONAL APPLICATIONS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **Method and Logical Units for Providing Services**, the specification of which: (mark only one)

___	(a)	is attached hereto.
__	(b)	was filed on _ as Application Serial No. __ and was amended on _____ (if applicable)
___	(c)	was filed as PCT International Application No. PCT/_____ on ____ and was amended on _____ (if applicable).
__	(d)	was filed on ___ as Application Serial No. __ and was issued a Notice of Allowance on ___.
X	(e)	was filed on March 21, 2000 and bearing attorney docket number 34648-00440USPX.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above or as allowed as indicated above.

I acknowledge the duty to disclose all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56. If this is a continuation-in-part (CIP) application, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability of the application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application

on which my priority is claimed or, (2) if no priority is claimed, before the filing date of this application:

PRIOR FOREIGN PATENTS

Number	Country	Month/Day/Year Filed	Date first laid-open or Published	Date patented or Granted	Priority Claimed Yes	No
99105742.3	EPO	March 22, 1999			XX	

I hereby claim the benefit under 35 U.S.C. § 120/365 of any United States application(s) listed below and PCT international applications listed above or below:

PRIOR U.S. OR PCT APPLICATIONS

Application No. (series code/serial no.)	Month/Day/Year Filed	Status(pending, abandoned, patented)
NONE		

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all of the firm of **JENKENS & GILCHRIST, a Professional Corporation**, 1445 Ross Avenue, Suite 3200, Dallas, Texas 75202-2799, as my attorneys and/or agents, with full power of substitution and revocation, to prosecute this application, provisionals thereof, continuations, continuations-in-part, divisionals, appeals, reissues, substitutions, and extensions thereof and to transact all business in the United States Patent and Trademark Office connected therewith, to appoint any individuals under an associate power of attorney and to file and prosecute any international patent application filed thereon before any international authorities, and I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization who/which first sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct them in writing to the contrary.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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